



TECHNICAL NOTE

DATE
09-11-00

SeeDOS Ltd
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NUMBER
4416-00

SUBJECT: Single to Multiple Seed Calibration

The following information is provided as a service to our users and customers:

Measuring the activity of seeds in any of the following source holders for holding multiple seeds: Source Holder for LDR Seed Batch Assay, REF 70022; Source Holder for I-125 RAPID Strand™, REF 70023; Source Holder for Mick™ Cartridge, REF 70024; Source Holder for Indigo EXPRESS Seeding Cartridge, REF 70032

Calibration at the University of Wisconsin

- The ADCL (Accredited Dosimetry Calibration Laboratory at the University of Wisconsin) provides calibration certificates for iodine or palladium isotopes only in association with the Source Holder for Single LDR Seeds, REF 70016. This calibration certificate is for a specific isotope, for a specific source holder in a specific well chamber.
- The ADCL does not provide calibration certificates for source inserts which hold more than one seed at a time.

Complete calibration system

A complete HDR 1000 Plus calibration system for measuring the activity of single and multiple iodine or palladium seeds is composed of:

1. HDR 1000 Plus Well Chamber, REF 90008
2. Source Holder for Single LDR Seeds, REF 70016
3. ADCL Calibration for a specific isotope, iodine or palladium in Source Holder REF 70016
4. A source holder for multiple seeds,
 - Source Holder for LDR Seed Batch Assay, REF 70022
 - Source Holder for I-125 RAPID Strand™, REF 70023
 - Source Holder for Mick™ Cartridge; REF 70024
 - Source Holder for Indigo EXPRESS Seeding Cartridge, REF 70032

How the activity of a single iodine or palladium seed is measured

A physicist places the Source Holder for Single LDR Seeds in the HDR 1000 Plus Well Chamber. A single seed is placed in the source holder and a reading is obtained with the electrometer. The physicist multiplies the reading on the electrometer by the calibration factor of the ADCL calibration certificate and gets a very exact activity value for that specific seed.



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How the activity of multiple seeds is measured in a multiple seed insert

A physicist places the multiple seed source holder in the HDR 1000 Plus Well Chamber. A selection of multiple seeds, appropriate to the multiple seed source holder, is placed in the source holder and a reading is obtained with the electrometer. The physicist multiplies the ADCL calibration value obtained for that specific well chamber (item number 3 listed above in Complete calibration system) by a correction factor for the multiple seed source holder. This number is sometimes divided by the number of seeds being measured in the cartridge. This gives an estimate of the activity value of the seeds in the multiple seed source holder. The HDR 1000 Plus Instruction manual gives specific instructions for each multiple seeds source holder.

An example:

ADCL calibration X correction factor for the multiple seed source holder
number of seeds in the cartridge

This is basically how the activity is calculated. The actual formula in the instruction manual has several more values to it (for example, the electrometer reading, corrections for temperature and pressure). For a more detailed explanation, please refer to the HDR 1000 Plus instruction manual.